16-Port and 24-Port 10/100 Switches

Use this guide to install the following products:

SR216	16-Port 10/100 Switch
SR224	24-Port 10/100 Switch

User Guide

LINKSYS®

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Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.

FCC STATEMENT

Every 10/100 Switch has been tested and complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

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Table of Contents

Chapter 1: Introduction

The 10/100 Switch

With its advanced switching technology, the Linksys 16- or 24-Port 10/100 Switch will boost your network performance with much more than just full duplex data transfer and dedicated bandwidth. It features non-blocking, wire-speed switching that forwards packets as fast as your network can deliver them. Also included are Address Learning and Aging to prevent data transfer errors and Data Flow Control to help prevent packet collisions.

You have several installation options. The Switch's compact size fits onto your desktop, or use the wall mount slots to hang it somewhere out of the way. If your network equipment is in a rack, install it using the included rack mount brackets.

No matter how intensive your network demands, the Linksys 16- or 24-Port 10/100 Switch has speed, flexibility, and reliability that you can count on.

Features

- Ideal for Integrating Your 10BaseT and 100BaseTX Network Hardware
- 16 or 24 10/100 Ports Provide Dedicated Bandwidth in Half- or Full-Duplex Modes
- Switched 10/100 Ports Run at up to 200Mbps in Full-Duplex Mode
- Each Port Supports Auto MDI/MDI-X Cable Detection
- Compatible with All Major Network Operating Systems
- Advanced Store-and-Forward Packet Switching Optimizes Data Transfers
- Auto Partitioning Protects PCs from Downed Network Lines
- Signal Regeneration Ensures Data Transfer Integrity
- Free Technical Support—24 Hours a Day, 7 Days a Week, Toll-Free US Calls
- Limited Lifetime Warranty

Chapter 2: Getting to Know the 10/100 Switch

Overview

The 16- and 24-Port 10/100 Switches differ in number of LEDs and ports. Pictured here is the 16-Port 10/100 Switch; however, the other Switch is similar in form.

Front Panel LEDs and Ports

Figure 2-1

The LEDs and network ports are located on the front panel of the Switch.

System — *Green.* The System LED will light up when the Switch is powered on.

1-16 or **1-24** — *Green.* Each LED will light up when there is a connection made through its corresponding port. It will flash when there is activity on its corresponding port.

Back and Side Panel Features

Figure 2-2

The power port is located on the back panel of the Switch (see Figure 2-2).

(power) — The power port is where you will connect the included power cord.

Figure 2-3

The security slot is located on a side panel (see Figure 2-3).

(security slot) — The security slot is where you can attach a lock so the Switch will be protected from theft.

Chapter 3: Connecting the 10/100 Switch

Overview

This chapter will explain how to connect network devices to the Switch. For an example of a typical network configuration, see the application diagram shown in Figure 3-1.

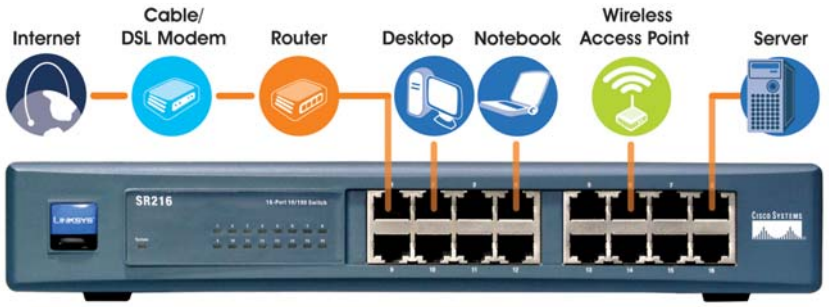

Figure 3-1

When you connect your network devices, make sure you don't exceed the maximum cabling distances, which are listed in the following table:

Maximum Cabling Distances

From	To	Maximum Distance
Switch	Switch or Hub*	100 meters (328 feet)
Hub	Hub	5 meters (16.4 feet)
Switch or Hub	Computer	100 meters (328 feet)

**A hub refers to any type of 100Mbps hub, including regular hubs and stackable hubs. A 10Mbps hub connected to another 10Mbps hub can span up to 100 meters (328 feet).*

Connecting Network Devices

To connect network devices to the Switch, follow these instructions. (The 16-Port 10/100 Switch is shown in Figure 3-2.)

1. Make sure all the devices you will connect to the Switch are powered off.
2. Connect a Category 5 Ethernet network cable to one of the numbered ports on the Switch.

Figure 3-2

3. Connect the other end to a PC or other network device.
4. Repeat steps 2 and 3 to connect additional devices.
5. Connect the supplied power cord to the power port on the Switch's back panel.
6. Plug the other end of the power cord into an electrical outlet.
7. Power on the devices connected to the Switch. Each active port's corresponding LED will light up on the Switch.

Proceed to the following section, "Placement Options."

Placement Options

There are three ways to physically install the Switch:

- set the Switch on its four rubber feet
- mount the Switch in a standard rack (1U high)
- hang the Switch on a wall using its wall-mount slots.

To rack mount the Switch, follow these instructions:

1. The Switch has four mounting holes on each side. Screw an included mounting bracket into each side.

2. Lift the Switch into the rack, and secure the brackets with additional screws (not included).

To hang the Switch on a wall, follow these instructions:

1. The wall-mount slots are two crisscross slots on the Switch's bottom panel (see Figure 3-3). The distance between the two slots is 95 mm. Attach two screws to the wall, so that the Switch's wall-mount slots line up with the two screws.

Figure 3-3

2. Maneuver the Switch so the screws are inserted into the two slots.

Congratulations!

The installation of the 10/100 Switch is complete.

Appendix A: Glossary

10BaseT - An Ethernet standard that uses twisted wire pairs.

100BaseTX - IEEE physical layer specification for 100 Mbps over two pairs of Category 5 UTP or STP wire.

Auto MDI/MDI-X - On a network hub or switch, an auto MDI/MDI-X port automatically senses if it needs to act as a MDI or MDI-X port. The auto-MDI/MDI-X capability eliminates the need for crossover cables.

Auto-negotiate - To automatically determine the correct settings. The term is often used with communications and networking. For example, Ethernet 10/100 cards, hubs and switches can determine the highest speed of the node they are connected to and adjust their transmission rate accordingly.

CAT 5 - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify "categories" (the singular is commonly referred to as "CAT") of twisted pair cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 5 cable has a maximum throughput of 100 Mbps and is usually utilized for 100BaseTX networks.

CAT 5e - The additional cabling performance parameters of return loss and far-end crosstalk (FEXT) specified for 1000BASE-T and not specified for 10BASE-T and 100BASE-TX are related to differences in the signaling implementation. 10BASE-T and 100BASE-TX signaling is unidirectional-signals are transmitted in one direction on a single wire pair. In contrast, Gigabit Ethernet is bi-directional-signals are transmitted simultaneously in both directions on the same wire pair; that is, both the transmit and receive pair occupy the same wire pair.

Ethernet - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

Fast Ethernet - A 100 Mbps technology based on the 10Base-T Ethernet CSMA/CD network access method.

Hub - The device that serves as the central location for attaching wires from workstations. Can be passive, where there is no amplification of the signals; or active, where the hubs are used like repeaters to provide an extension of the cable that connects to a workstation.

Mbps (**M**ega**b**its **p**er **s**econd) - One million bits per second; unit of measurement for data transmission.

MDI (**M**edium **D**ependent **I**nterface) - On a network hub or switch, a MDI port, also known as an uplink port, connects to another hub or switch using a straight-through cable. To connect a MDI port to a computer, use a crossover cable.

MDI-X (**M**edium **D**ependent **I**nterface Crossed) - On a network hub or switch, a MDI-X port connects to a computer using a straight-through cable. To connect a MDI-X port to another hub or switch, use a crossover cable.

Network - A system that transmits any combination of voice, video and/or data between users.

Switch - 1. A data switch connects computing devices to host computers, allowing a large number of devices to share a limited number of ports. 2. A device for making, breaking, or changing the connections in an electrical circuit.

Topology - A network's topology is a logical characterization of how the devices on the network are connected and the distances between them. The most common network devices include hubs, switches, routers, and gateways. Most large networks contain several levels of interconnection, the most important of which include edge connections, backbone connections, and wide-area connections.

UTP - Unshielded twisted pair is the most common kind of copper telephone wiring. Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each signal on twisted pair requires both wires. Since some telephone sets or desktop locations require multiple connections, twisted pair is sometimes installed in two or more pairs, all within a single cable.

Appendix B: Specifications

Model Number	SR216 16-Port 10/100 Switch SR224 24-Port 10/100 Switch
Standards	IEEE 802.3, IEEE 802.3u
Ports	
SR216	16 RJ-45 10/100
SR224	24 RJ-45 10/100
Cabling Type	Category 5 Ethernet or Better
LEDs	
SR216	System, 1 through 16
SR224	System, 1 through 24
Security Feature	Security Slot

Environmental

Dimensions	
SR216	11.00" x 1.75" x 9.45" (279.4 mm x 44.5 mm x 240 mm)
SR224	11.00" x 1.75" x 9.45" (279.4 mm x 44.5 mm x 240 mm)
Unit Weight	
SR216	3.3 lbs. (1.5 kg)
SR224	3.3 lbs. (1.5 kg)
Power	
SR216	Input 110 V AC, Output 16.5 W
SR224	12.5 W Internal 100 ~ 240 V AC
Certifications	FCC Class B, CE
Operating Temp.	0ºC to 50ºC (32ºF to 122ºF)
Storage Temp.	-40ºC to 70ºC (-40ºF to 158ºF)
Operating Humidity	20% to 95%, Non-Condensing
Storage Humidity	5% to 90%, Non-Condensing

Appendix C: Warranty Information

BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

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Appendix D: Contact Information

For help with the installation or operation of this 10/100 Switch, contact Linksys Technical Support at one of the phone numbers or Internet addresses below.

Sales Information	800-546-5797 (LINKSYS)
Technical Support	800-326-7114
RMA (Return Merchandise Authorization) Issues	www.linksys.com (or call 949-271-5461)
Fax	949-265-6655
E-mail	support@linksys.com
Web	http://www.linksys.com
FTP Site	ftp.linksys.com

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